

REMARKS

The Applicant has carefully reviewed and considered the Examiner's Action mailed September 20, 2006. Reconsideration is respectfully requested in view of the foregoing amendments and the comments set forth below.

By this Amendment, claims 1, 10, 21 and 24-26 are amended and claims 8, 15 and 22 are canceled. In addition, new claims 27-29 are presented. Accordingly, claims 1-7, 9-14, and 16-29 are pending in the present application.

The Applicant thanks Examiner Rahman for the courtesies extended to his representative during the December 14, 2006 telephonic interview. The Examiner stated that the terms in the claim were given very broad definitions since the claims did not specifically recite those terms and the specification does not provide a definition of the recited terms. For example, it was the Examiner's position that a graph in Figure 1 of Altmejd "comprises all possible combinations including minimum allowed value" when the disclosure of the reference simply states that a relationship between a computer system's power and temperature related to a processor's voltage and temperature is shown. In particular, the Examiner indicated that definitions of the terms "minimum allowed value" and "predetermined value" in dependent claim 8 should be added to the claims to distinguish the same from the prior art of record.

Claims 24-26 were rejected under 35 U.S.C. §101 because it is was the Examiner's position that the claimed invention is non-statutory. The term "machine-readable medium" is defined in paragraph [00012] of the originally filed specification to include any mechanism for storing or transmitting information in a form readable by a machine (e.g., computer). That is, the term "machine-readable medium" is defined to include computer-

readable medium, which the Examiner acknowledges is statutory. Accordingly, it is submitted that claims 24-26 are directed to statutory subject matter and withdrawal of the rejection under 35 U.S.C. § 101 is requested.

Claims 1, 6, 8, 10-11, 13, 15 and 21-26 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 7,036,030 to Altmejd (hereinafter referred to as “Altmejd”) as explained in paragraphs spanning pages 2-5 of the Action. In view of the foregoing amendments, it is believed that this rejection is moot. However, to the extent, it may apply this rejection is respectfully traversed.

As discussed in column 1, lines 41-55 of Altmejd, the usual approach to adjust processor performance is to reduce frequency and/or applications when the temperature goes up. That is, Altmejd discloses a practice of “throttling” prevents the processor from overheating by temporarily placing the processor in a stop grant state. Thus, according to Altmejd, when the sensed temperature is too high, the effective frequency of the processor and the corresponding power is reduced.

The above is contrary to the claimed invention which recites “when the sensed temperature [of the chip] is **less than** a predetermined value representing an idle state of the chip, ... the operating voltage of the chip [is reduced] to a **minimum allowed voltage value** at its idle state.” That is, the claimed invention is to reduce power in the power-down state or idle state (e.g., sleep or low power state).

Altmejd is directed to a computer system and method of using temperature measurement readings to detect user activity and to adjust processor performance. It is Altmejd’s method to take a temperature reading of a computer, determine a desired operating temperature for the computer, compare the temperature reading and the desired

temperature to determine a temperature difference and then, determine a user activity based on the temperature difference, or, adjust a voltage applied to a processor within the computer. According to Altmejd, it is a goal to have the processor operate at a particular voltage and frequency based on the desired operating point (column 3, lines 27-30 of Altmejd). There is no disclosure in Altmejd of sensing a temperature of a chip and if the sensed temperature is less than a predetermined threshold value representing an idle state of the chip, reducing the operating voltage of the chip to a minimum allowed voltage at its idle state, as recited in independent claims 1 and 10.

Nowhere does Altmejd disclose an idle state where the temperature is reduced when the temperature representing the idle state is detected. To the contrary, Altmejd discloses that the operating voltage is reduced when the processor is overheated in column 1, lines 41-55. Accordingly, Altmejd fails to disclose each and every feature of the claimed invention.

With respect to claims 21 and 24, nowhere does Altmejd disclose a method of measuring the temperature of a chip while the chip is ON and then reducing the operating voltage delivered to the chip when it drops below an predefined threshold temperature representing an idle state of the chip. It is respectfully submitted that claims 1, 6, 10-11, 13, and 21-26 are not anticipated by Altmejd because it fails to disclose each and every feature of the claimed invention, as argued above. Withdrawal of the rejection under 35 U.S.C. §102 (e) is requested.

Claims 2-5, 9, 12, and 16 were rejected under 35 U.S.C. § 103(a) over Altmejd, as explained in the paragraphs spanning page 5-6 of the Action. This rejection is traversed.

As discussed above, Altmejd teaches against the claimed invention. Altmejd is directed to an ON condition when a user can run a number of different applications that may

require different frequency and voltage. In contrast, the claimed invention focuses on the idle state or power down condition - when almost no application is running and proposes methodology to calculate a threshold temperature and to reduce power to an even lower when the chip is in its idle state. Accordingly, one of ordinary skill in the art would not have modified the teachings of Altmejd to achieve the lowest possible voltage for the chip to operate satisfactorily when it is determined to be in its idle state. Consequently, Altmejd does not render the claimed invention unpatentable and withdrawal of the rejection of claims 2-5, 9, 12 and 16 is requested.

Claims 7 and 14 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Altmejd in view of U.S. Patent No. 6,047,248 to Georgiou et al. (hereinafter referred to as “Georgiou”) for the reasons described in the middle of page 6 of the Action. This rejection is traversed.

Georgiou is directed to a performance-temperature optimization by cooperatively varying the voltage and frequency of a circuit. There is no discussion of an idle state or a power down condition. Thus, Georgiou fails to provide the teaching missing above from Altmejd. Accordingly, Georgiou in combination with Altmejd cannot render the claimed invention obvious. Withdrawal of this rejection is requested.

Claim 17 was rejected as being unpatentable over Altmejd in view of U.S. Patent No. 5,502,838 to Kikinis as explained on the top-half of page 7 of the Action. Claims 18-20 were rejected as being unpatentable over Altmejd in view of Kikinis and further in view of Georgiou as set forth in the paragraphs spanning pages 7-8 of the Action. These rejections are traversed because neither Kikinis nor Georgiou provides the teaching missing from Altmejd, as argued above. Accordingly, the rejections of claims 17-20 should be

withdrawn.

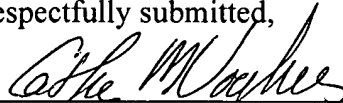
New dependent claims 27-29 add more definition to the terms "minimum allowed value" and "predetermined value" (now threshold temperature). Support for the above claim language can be found in paragraphs [00014] - [00015] and [00022] of the originally-filed specification. As set forth in the new claims, the combination of the threshold temperature and the minimum allowed voltage maintains the speed characteristics of the chip (e.g., no timing violations), while providing significant reduction in power consumption of the chip. Nowhere do any of the applied or cited prior art disclose, teach or suggest such a feature. Accordingly, claims 27-29 should be allowed over the prior art of record.

In view of the foregoing amendments, it is respectfully requested that a Notice of Allowance be issued indicating that claims 1-7, 9-14, and 16-29 are allowed over the prior art of record.

Should the Examiner believe that a conference would advance the prosecution of this application, the Examiner is encouraged to telephone the undersigned counsel to arrange such a conference.

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Respectfully submitted,



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